Minimal or non-existent errors

Idaho 8th Grade Direct Mathematics Assessment

2003 8th GRADE MAIN RANGEFINDER 4

It is important that you show or explain how you solved the problems on this assessment. If you use a calculator, show how you set up the math.

1. Your school is planning a snowboarding trip to a local resort as part of the advanced P.E. class. Each student must purchase a regular or P.E. class package.

Regular Package		**P.E. Class Package**		**Lunch**	
Lift pass	$22.00	Lift pass	$ 6.00	Monster burger	$5.95
Group Lesson	$18.00	Group lesson	$ 7.00	Fries	$2.35
Snowboard	$25.00	Snowboard	$13.00	Drink	$1.70

a. How much would you save by choosing the P.E. class package? *Show or explain how you found your answer.* Add total cost of P.E. package and also the regular package. Then subtract the cost of the P.E. package from the regular package price. The total is how much money you saved.

13 + 7 + 6 = 26; 22 + 18 + 25 = 65; 65 − 26 = $39

$39.00

b. If you were to go snowboarding using the regular package, the snowboard rental would represent what percent of the total cost? *Show or explain how you found your answer.* Add up total of regular package. Then, make a fraction of $25 over the total. Reduce. Devide 5 by 13. Multiply answer by 10. Make it a percent. Answer. (Round if necessary)

25 + 22 + 18 = 65; 25/65 = 5/13

13) 5.000000 = 0.384615 3

38.5% ← 38.461538%

c. At lunchtime you decide to have a monster burger, fries, and a drink. Find the total cost of lunch including a 6% sales tax. *Show or explain how you found your answer.* Add up total of lunch without tax. Multiply $10.00 by 0.06. Add 60¢ with $10.00 to get $10.60.

5.95 + 2.35 + 1.70 = 10.00

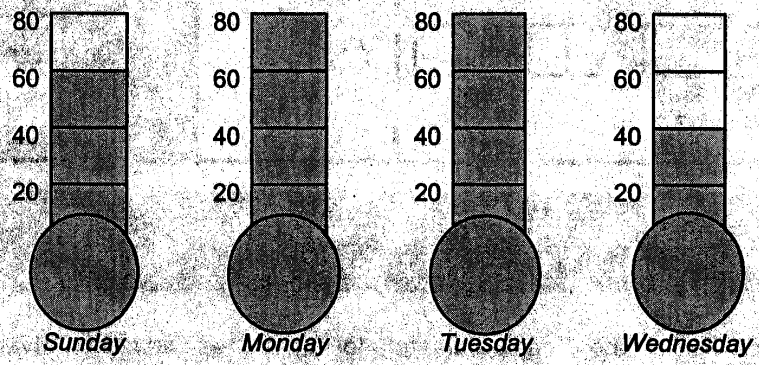
10.00 × 0.06 = 0.6000

$10.60

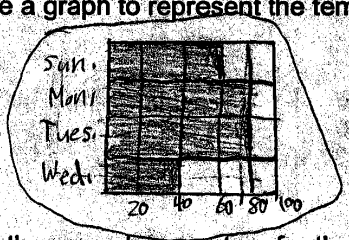
Appropriate processes accurately completed

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

2. During the first four days of last week, Dan recorded the 10:00 a.m. temperature. Use the data below to answer the following prompts.



a. Make a graph to represent the temperature.



b. Find the mean temperature for the four-day period. *Show or explain how you found your answer.* Add up total Temperatures, Devide total by 4 (four days). Label answer. Doesn't say which scale to use, just put degrees.

60
40
80
+80
260

65
4 ⟌260
-24
20
-20
0

65°

Advanced use of communication skills

c. On Tuesday at 7:30 a.m., the temperature was 35°. Determine the rate of change, in degrees per hour, between 7:30 a.m. and 10:00 a.m. *Show or explain how you found your answer.*

2½ hours, temp. went up 45°. Devide 45 (change) by 2.5 (hours) to get degrees per hour. Multiply by 10 to get 450 devided by 25. Devide. Answer, Label.

18
25 ⟌450
-25
200
-200

18° per hour.

d. If the temperature changed at a constant rate on Tuesday, determine the temperature at 8:45 a.m. *Show or explain how you found your answer.* 8:45 - 7:30 to get time change. Multiply 1.25 by 18 (from previous problem), Add 22.5 to 35. Answer, Label

8:45
-7:30
1:15

1¼ hours

18.00
9000
36000
+180000

22.5
+35
57.5

57.5°

Advanced application of basic skills

3. The rectangle shown here is 1 unit by 2 units.

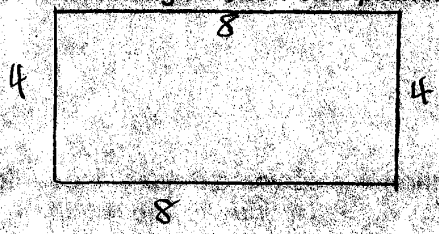
a. Find the perimeter and the area of this rectangle. *Show or explain how you found your answer.* Perimeter is 2+2+1+1, Answer, Answer, Label,
Area is base • height (2·1)
2+2+1+1=6

Perimeter = 6 units
Area = 2 units²

$\frac{2}{1}$
$\frac{1}{2}$

Effective problem-solving strategies

b. Sketch and label a rectangle that is 4 units by 8 units. Find the perimeter and the area of this second rectangle. *Show or explain how you found your answer.* Perimeter = 2+8+4+4 (24)
Area = 8·4 (32)
Answer, Label,



Perimeter = 24 units
Area = 32 units²

Effective problem-solving strategies

c. What is the ratio of the perimeters of the first rectangle to the second rectangle? What is the ratio of the areas of the first rectangle to the second rectangle? *Show or explain how you found your answer.* Make fractions for ratios, Reduce, Answer, Label,

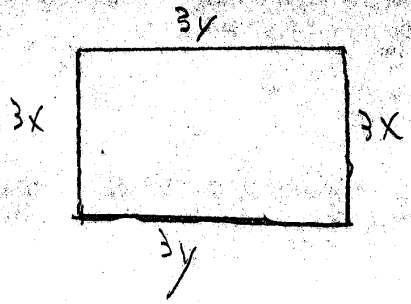
$\frac{6}{24}$ $\frac{2}{32}$

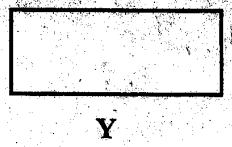
$\frac{1}{4}$ $\frac{1}{16}$

Perimeter = 1:4
Area = 1:16

Perimeter = 1 to 4
Area = 1 to 16

d. Describe the perimeter and area of a rectangle that is three times as long and three times as wide as the rectangle shown here. *Show or explain how you found your answer.*





Perimeter = 2 base + 2 height
Area = b·h
Answer,
Label,

Perimeter = 6x+6y
Area = 3x·3y

Higher-order thinking skills (analysis, synthesis, and evaluation

4. Each time you buy a hamburger or hot dog at BOB'S DRIVE-IN, you get a card with three squares on it. When you rub each square on your card, a picture of a taco or a drink appears. If all pictures match, you get a free order of fries.

a. List all the possible ordered combinations of pictures you could get when you rub off the squares. *Show or explain how you found your answer.*

b. What is the probability that the card you get will be a winner? *Show or explain how you found your answer.*

c. One day, BOB'S DRIVE-IN gave away 296 cards. Suppose that one fourth of the cards were winning cards. How many orders of fries were given away? *Show or explain your answer.*

d. It costs BOB'S DRIVE-IN $0.23 to buy, prepare, and serve an order of fries. How much did the give-away cost BOB'S? *Show or explain how you found your answer.*

Advanced understanding of situations

5. The school drill team has decided to have a car wash for a fund-raiser. They have discovered that 3 girls can wash 2 cars in about 15 minutes. The team has 24 girls.

a. How many cars can the entire team (24 girls) wash in 5 hours? *Show or explain how you found your answer.* Make a ratio for ... Multiply by 8 Multiply by 4 to get per hour, Multiply by 5 to get for 5 hours. Answer. Label

3:2 .8 .8 .4 24:16 96:64 :5 :5 480:320 320 cars 96 ·5 480 64 ·5 320

b. If one group of girls washes 40 cars, what fraction of the total do they wash? What percent of the total do they wash? *Show or explain how you found your answer.* Make fraction, $\frac{40}{320}$; Reduce. Devide 1 by 8. Answer. Label. $\frac{1}{8}$ | 12.5% $\frac{40}{320}$ $\frac{1}{8}$ 8)1.000 8 20 -16 40 -40 0

c. The drill team charges $5.00 per car. Find the amount of money that will be left after the team spends 40% of their earnings for summer camp. *Show or explain how you found your answer.* Multiply 320 by $5.00, Multiply by 3/5, Reduce. Answer. Label. $640 $1600 320 ·5 1600 320 +1600 .2 $1

Advanced understanding of situations